U.S. Department of Transportation: Medications and Driver Safety

This project examined the driving safety of older adults who take multiple medications, comparing Occupational Therapists' driving assessments with in-vehicle video recordings of daily driving by older adults to assess safety risk.

Lead Agency:

U.S. Department of Transportation
National Highway Traffic Safety Administration (NHTSA)

Agency Mission:

Save lives, prevent injuries and reduce economic costs due to road traffic crashes through education, research, safety standards and enforcement activity.

Principal Investigator:

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Partner Agency:

University of North Carolina Highway Safety Research Center

General Description:

The use of medications and multiple medications becomes more prevalent with increasing age. This pilot study explored the relationship between polypharmacy and driving functioning through separate but related research activities. A patient-level administrative claims database containing prescription information as well as E-codes identifying the incidence of motor vehicle injuries was mined, yielding combinations of drugs that became inclusion criteria in a field study of driver performance among 44 older adults (range: 57 to 89; mean: 79). Measures included driving performance evaluations by an Occupational Therapist/Certified Driving Rehabilitation Specialist, a brake response time measure, and functional screening measures for the study sample, whose drug profiles were documented through a "brown bag" review by a licensed pharmacist. Descriptive data summaries and regression analyses examined the relationship between medication usage and each of these outcome measures.

Additional project activities included a current (to October 2007) review of the literature on the prevalence of prescription medications and effects on driving of specific drugs and drug classes. The feasibility of conducting future studies using large, administrative

claims databases was critically examined, with an overview of candidates and evaluation of their suitability for NHTSA research.

Excellence: What makes this project exceptional?

This project developed a methodology to examine the effects that talking multiple medications has on the ability of older adults to drive safely. Combinations of medications were selected using a patient-level administrative claims database linked to crash codes.

Significance: How is this research relevant to older persons, populations
                                   and/or an aging society?

This study provides a potential alternative methodology for assessing driver functionality by using in-vehicle video cameras that collects objective driving behavior information to examine how these drivers perform under daily driving conditions.

Effectiveness: What is the impact and/or application of this research to
                                   older persons?

This research provides important information to older drivers on the risks associated with taking certain medications and driving and for older driver specialists such as Occupational Therapists or Certified Driver Rehabilitation Specialists who may be conducting remedial driver training.

Innovativeness: Why is this research exciting or newsworthy?

This research uses in-vehicle technology to examine how older drivers taking multiple medications drive under their normal daily conditions and compares it to how they drive during a driving assessment administered by an occupational therapist. There are differences in how they drive under these circumstances.